

Record of the alien species *Cerithium scabridum* Philippi, 1848 (Gastropoda: Cerithiidae) from Otranto, southern Adriatic Sea

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Abstract

A living population of the alien species *Cerithium scabridum* Philippi, 1848 was found in the harbour of Otranto (Lecce), south-western Adriatic Sea. Photographs of the living animal and observations on its behaviour are presented. This record extends the known distribution of this lessepsian immigrant into a new basin of the Mediterranean Sea.

Riassunto

Si segnala l'esistenza di una popolazione di *Cerithium scabridum* Philippi, 1848 all'interno del porto di Otranto (Lecce) in acque molto basse (1-2 m di profondità) su un substrato duro costituito da uno scalo di alaggio all'estremo sud-est del porto. La popolazione ha una densità di 20-30 esemplari al metro quadro. La specie tollera acque inquinate da olii minerali presenti a causa dell'intenso traffico marittimo nell'area portuale. Essa è probabilmente presente in altre aree del porto di Otranto, visti gli sporadici ritrovamenti di esemplari morti spiaggiati, ma ai quali non è stato possibile dare conferma col ritrovamento di esemplari vivi. Sulla base delle segnalazioni di esemplari morti (dal 2005) e della consistenza della popolazione osservata, si ritiene che questa sia stabile e riproduttiva. Gli esemplari rinvenuti sono di dimensioni variabili tra 12 e 18,8 mm, spesso molto incrostati e con la protoconca erosa. È stato osservato il mollusco il cui colore è beige con numerosissimi piccoli puntini bianchi e scuri. I tentacoli sono biancastri con puntini scuri. La base del piede ha un colore più uniformemente beige, con pochi puntini. Il bordo del mantello è grigiastro con puntini bianchi. Una segnalazione in bibliografia di esemplari morti di *C. scabridum* per l'area di Monopoli (Bari), circa 150 km più a nord di Otranto, richiede ancora conferma.

Key-words

Cerithium scabridum, Gastropoda, Lessepsian migration, alien species, Mediterranean.

Introduction

Cerithium scabridum Philippi, 1848 is an Indo-Pacific immigrant into the Mediterranean Sea. Its original distribution ranges from the Red Sea to the Persian Gulf and India (CIESM, 2005). In the Mediterranean Sea, its distribution has been recently revised by Garilli & Caruso (2004): local populations are recorded from the Eastern Mediterranean (from Egypt northwards to Turkey) and from the Central Mediterranean (Tunisia and Sicily).

The present record of a living population in the Adriatic Sea extends the distribution into a new basin of the Mediterranean Sea. It is a typical example of Lessepsian migration, i.e. a progressive penetration *via* the Suez Canal (Por, 1978, Zenetos et al., 2004).

Material and methods

The Authors examined 70 beached specimens of *Cerithium scabridum* (collected in April 2007) and 30 live specimens (collected in July-August 2007), now stored in their private collections (a few preserved in ethanol). A few specimens were deposited in the Zoological Museum of the University of Bologna. Several tens of specimens were observed and photographed in the locality we are going to describe in the present work.

Results

The population of *Cerithium scabridum* is localized in the harbour of Otranto (Lecce, Puglia), at the easternmost tip of Southern Italy (Fig. 1).

The first certain records of *C. scabridum* in the harbour of Otranto were limited to dead specimens cast ashore by currents and tides in a very localized spot of the harbour: a concrete slipway for boats in the south-eastern part of the harbour, just in front of the Capitaneria di Porto offices and near the trawlers mooring (Fig. 2, site A) (on www.aicon.com/sim/bbs: Mr. Corso, June 9th, 2005, Mr. Montaguti September 12th, 2005).

The malacofauna of this bay was studied by Macri (1981). He did not report *C. scabridum*, but listed *C. rupestre* Risso, 1826. This taxon has been used for almost every small sized Mediterranean species of *Cerithium* in many works for several decades (Gofas et al., 2003), despite at least two different autochthonous species are now recognized for the Mediterranean fauna (*C. lividulum* Risso, 1826 and *C. renovatum* Monterosato, 1884). *C. scabridum* can certainly be recognized as a third "small *Cerithium*". However, the lack of any finding by professional or amateur collectors during the long time since the publication of Macri's work leads to the assumption that first settlement of *C. scabridum* in Otranto can be traced only a few years back.

Dead specimens were found mixed up with other com-



Fig. 1. Location of Otranto in Italy.
Fig. 1. Ubicazione di Otranto in Italia.

mon native species, such as *Cerithium vulgatum* Bruguiere, 1792, *Patella caerulea* Linné, 1758, *P. ulyssiponensis* Gmelin, 1791, *Nassarius corniculus* (Olivi, 1792) and *N. cuvierii* (Payraudeau, 1826) by the present authors in April 2007, as well as by other shell collectors. Since specimens were found dead during such a long



Fig. 2. Otranto Harbour, aerial photograph (from Google Earth™). Site A is the slipway where a live population was found. Site B is another slipway where only dead beached specimens were found.
Fig. 2. Porto di Otranto, foto aerea (da Google Earth™). Il sito A è lo scalo di alaggio dove è stata trovata una popolazione vivente. Il sito B indica un altro scalo di alaggio dove sono stati trovati esemplari morti.

period, the presence of a living population was clear, but still not documented. In July and August 2007, a diving in front of the slipway led to the discovery of a thriving population. Specimens were observed exposed to sun-light on the hard bottom constituted by the submerged slipway, 1 or 2 m deep, which is slightly covered with an algal mat, exactly off the spot where dead specimens were found (Fig. 3).



Fig. 3. *Cerithium scabridum* in situ. Submerged slipway in the harbour of Otranto (cfr. fig. 2 site A), – 1 m, August 16th, 2007.

At a slightly shallower depth (0.5-1 m), a rich population of *Cerithium vulgatum* was present, apparently not mixing up with the *C. scabridum* one.

Water transparency is poor in this part of the harbour and visibility is limited to a few meters, even in sunny days with low wind. Moreover, pollution from mineral oils is present due to the heavy boat traffic and consequent leakage of lubricants and fuels. These conditions seem to not affect the species, since it thrives in this spot with densities of 20-30 specimens per square-meter.

The population density and the records during the last three years of dead specimens suggest this is an established population.

The live specimens from the Otranto harbour range in size from 12 to 18.8 mm. Most of them are encrusted by calcareous algae and spirorbids and the apical whorls are heavily eroded. This prevented us from studying the protoconch (see Garilli & Caruso, 2004 for the sculpture of protoconch II). Thick spiral ribs are present on the teleoconch whorls (Fig. 4).

The living animal was observed and photographed (Fig. 5). The soft parts have a beige background with a myriad of small white and dark dots. The tentacles are whitish with dark dots. The base of the foot has a more uniform beige colour, with fewer white and dark dots. The mantle edge is grayish with white dots.

As resulted from our attempts to photograph the living animal in the laboratory, *C. scabridum* is extremely shy and very sensitive to light changes. Moreover, it shows a marked tropism to light, readily orienting its head toward the direction where light comes from.

The distribution of this species in the harbour of Otranto is rather odd. The living population was found only near the slipway described above. Our search for additional living specimens or populations was unsuccessful and only a few dead specimens were found near



Fig. 4. *Cerithium scabridum*, Harbour of Otranto (Fig. 2, site A), -1 m, July 2007 (height: 12 mm).

Fig. 4. *Cerithium scabridum*, porto di Otranto (Fig. 2, sito A), -1 m, luglio 2007 (altezza: 12 mm).

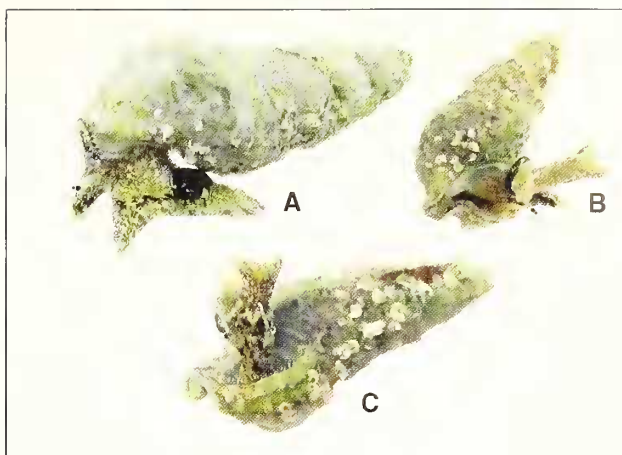


Fig. 5. *Cerithium scabridum*: shots of the live animal (Otranto Harbour, August 2007).

Fig. 5. *Cerithium scabridum*: foto del mollusco (porto di Otranto, agosto 2007).

another slipway in the southern part of the harbour (Fig. 2, site B).

There are no records of *C. scabridum* from the area south of Otranto and all along the Penisola Salentina (Trono, 2006). However, Otranto may not be the northernmost location where *C. scabridum* is established. De Jong (2006) reported empty shells of this species from Monopoli (Bari), about 150 km north of Otranto. It was not possible to cross-check this record, since it was not illustrated. A survey by the first author along the coast north (April 2006) and south of Monopoli (August 2007) did not bring results about the occurrence of *C. scabridum*, but the extreme localization observed in Otranto tells us that a thorough research is needed to locate further populations.

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